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AUTHOR	Brien, Richard H.
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ABSTRACT

Among many diverse pressures on higher education, there are 5 major stresses which together have produced a crisis in university management: the growing student population, rising costs, a rapidly changing demand for programs, student demands for relevance, and an increasingly repressive public environment. Although some academicians fear the application of business management methods to academic administration, their fears are attributable to a limited view of management process. One of the features of management is systems analysis which rests on 3 elements: a model or simulation of the organization's behavior; a continuous planning cycle (typically incorporating program budgeting); and a coordinated "management information system. "A carefully developed automated information system is needed to process data flowing into this system. The management system's character must be precisely tailored to 2 parameters: the existing institutional profile (size, traditions, strengths, anticipated growth, organizational structure) and the future institutional profile (goals and objectives). The University of Houston is an example of an institution that is undertaking a major drive toward implementation of management systems. (JS)

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THE "MANAGERIALIZATION" OF HIGHER EDUCATION

□ Richard H. Brien

FORCES GREATER in number and intensity stemming from more diverse origins than ever before are at work on the institutions and practices of higher education in the United States. A complete inventory of these pressures would be impractical, if not impossible to present, but five of the major stresses are of particular importance.

The first is the *growing college population*. It is estimated that between 1960 and 1970 total college-university enrollment more than doubled from 3.5 million to over 7 million.[1] Over the next decade the college-eligible age group is expected to grow at a rate more rapid than that of the total population. The pressure to increase even further the proportion of this group which actually enrolls in college will continue, with emphasis on programs for disadvantaged students.[2] By 1980, total enrollment will be 11.5 million, with two-thirds of the population between the ages of 18 and 21 attending college.[3]

A second major pressure is *rising costs*. As in all other sectors of American society, both operating and capital costs in education are caught in the vortex of chronic inflation. In addition, faculty and staff salaries are still being upgraded in real terms, although the rate of increase may be slowing. Unlike most industrial organizations, however, colleges and universities cannot offset cost increases by across-the-board direct revenue hikes without violating the social priority of making higher education even more widely available, especially to those least able to pay.

Higher education is also experiencing a *rapidly changing demand for programs*. Burgeoning technological change, a substantial part of it spawned by college and university research activities, is altering the occupational (and therefore the academic discipline) demand pattern. The process is fairly clear: research in the vanguard of an established discipline reveals a subbody of knowledge, and the seeds of a new discipline are sown. Functional applications are rapidly developed in the industrial, health, defense, or other sectors, and an ongoing demand for practitioners of the new discipline is created. The universities respond by creating a department; offering bachelor's, master's, and doctoral degrees, and mounting a major research activity that will soon subdivide the discipline again.

No issue is taken with the general thrust of this innovative process; it is a major part of the university's *raison d'etre*. But one must question the virtually uncontrolled proliferation of new programs, especially when matched pairs of costly teaching and research facilities are installed in the same area by two institutions (or sometimes by two departments within the same institution) and each operates at less than 50 percent of capacity.

Certainly another major vector at work on universities is the *students' wrenching quest for relevance*. Student restiveness, goals, and strategies are topics of such immediacy and widespread concern today that one is tempted to give them perhaps disproportionate attention. Still, subtler issues aside, students—who surely have been until recently the most unattended constituency of the university—are saying that, with all the programs offered, institutions still have managed to make much higher learning experience listless, unimaginative, and extraneous to the urgent

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social issues of the day.

A fifth, and consequent, pressure on higher education is an *increasingly repressive public environment*. When concerned students choose violent, destructive modes of expression they stimulate latent antiintellectualism in the nation at large. As a result, higher education feels reverberations in legislative budget appropriations for public institutions and in contributions from individuals and corporations for both public and private institutions. A graver fear is that nonuniversity bodies will attempt to effect stringent direct controls over the academic process.

What is the net result of these social and economic vectors? There is an urge toward a general expansion of the higher educational system, a dynamic demand for a continual reshaping of the program mix of colleges and universities, mounting evidence of dissatisfaction with the learning experience now provided, and growing dissatisfaction by constituencies whose financial support is crucial to the expansion and enrichment of college-level academic programs. Whenever an organization is faced with pressures to grow and to reformulate the mix and nature of its major activities at the same time that it is faced with rising costs and diminishing budgets—at least on a relative, if not an absolute, basis—it is squarely up against a management crises. At some time in the life cycle of virtually every organization, its ability to succeed in spite of itself runs out. That is precisely where many American colleges and universities find themselves today.

Management myth

Widely divergent views exist concerning the degree to which the management process can and should be applied in academic settings. There is a feeling among much of the nonacademic public, on the one hand, that colleges and universities should be run on a "businesslike" basis. What is needed to bring both budgets and students in line, according to this view, is a healthy slug of good old-fashioned, authoritarian management discipline.

There exists, on the other hand, a purely academic view of the university as an intellectual retreat: a community of scholars should be insulated externally and open, intimate, and spontaneous internally. To "manage" such a community is to impose upon it structure, hierarchy, and narrowly directed behavior.

Neither view is appropriate in light of the challenges currently faced by higher education in the United States. The first, the public-at-large perspective, would use outdated managerial philosophy to establish and pursue goals largely inappropriate for academic institutions. The second or academic view presumably involves more appropriate notions about the purpose and nature of educational institutions, but it attaches a stigma to the management process which is largely unfounded in view of recent developments in organization theory and management practice, and which impedes the accomplishment of many of the very goals educators would approve.

This is *not* to argue for the corporate-industrial model of the university with trustees acting as directors, the administration as management, faculty and staff as work force, and students as consumers.[4] Indeed, to argue for the imposition of the organization structure or model of one type of institution with a very specific constellation of goals on another organization with a distinctly different goal pattern is to violate brazenly what modern organization theory teaches. To demonstrate how incongruous it is to talk of the "education industry," one author observes that the inevitable counterpart is to refer to Procter & Gamble as a "detergent university."[5]

Julian Foster expresses the concern, though, that those who draw the parallel between industrial enterprises and universities will conclude that

> the university really *is* a species of corporation, to which principles of business management can appropriately be applied.[6]

One must share his concern if by "principles of business management" he means expression in specifically business terms of objectives to be sought by the university (*e. g.*, making a profit or increasing "market share"), or the use of a hierarchical/authoritarian organization structure to pursue the university's goals. But one suspects that his view of management is too narrowly perceived.

The management process is not exclusive to business, nor is business management necessarily conforming, hierarchical, and unable to abide conflict. All purposeful organizations are faced with the need to agree on goals to which the group will orient, choose from among alternative strategies to reach the established goals, reduce the selected strategy to achievable tasks, establish a time frame within which progress toward the goals will be measured, and marshal, allocate, and coordinate the flow of human, material, information, and energy resources necessary to effect the program. A new approach to the execution of this process holds out some promise of better achieving the goals of higher education, while at the same time developing a more humane, responsive organization structure for colleges and universities.

Systems approach

There is an undeniable and perhaps unfortunate vogue in management terminology for attempting to make analysis more scientific by borrowing extensively from other disciplines. While the rate of change in fashionable phraseology may be taken as a crude index of the vigor of the discipline, the new terms often bring an intimidating mystique along with their fresh contributions. Such has been the case with the systems concept. It has roots in the natural and physical sciences, in engineering, and in the military; more recently, it has become integrally linked with computer technology. What it means, in essence, and how it can be applied to management are matters that have become unduly obscured, perhaps by the concept's multiple derivations.[7]

For human decision making, systems analysis formally orginated during the development of optimal attack and defense patterns during World War II. Teams comprising scientists, engineers, and mathematicians were mobilized from universities and research labs.

> to help design software instead of hardware, plans instead of equipment, first in the Battle of Britain and later in all major campaigns.[8]

Emphasizing their methods of learning and decision making rather than their special knowledge, they structured the systems approach:

> An inquiry to aid a decision-maker to choose a course of action by systematically investigating his proper objectives, comparing quantitatively where possible the costs, effectiveness, and risks associated with the alternative policies or strategies for achieving them, and formulating additional alternatives if those examined are found wanting.[9]

The ability to analyze systematically the costs, risks, and probable outcomes of alternative courses of action rests on three highly interrelated elements: (1) a model or simulation of the organization's behavior (considering both internal and external determinants), (2) a continuous planning cycle (typically incorporating program budgeting), and (3) a coordinated "management information system."

A model is an abstracted, simplified, but controllable expression of complex real-world relationships. Typically, management models start out purely descriptive in nature and graphic or verbal in format. As the organization's goals and objectives are considered, refined versions often take on a predictive or normative character, while their format or mode of expression tends to become increasingly mathematical. In any event,

> . . . the problems confronting us today involve incredibly complex mazes or "nests" of interconnections and linkages rather than straightforward associations and cause-and-effect sequences, and the results of important changes may be extremely difficult to predict. In such cases a good model can help appreciably by supplementing intuition and judgment. It is one thing to rely solely on speculations about how people will behave under certain real-life circumstances, and something else again when one can objectively investigate possible behavior patterns by simulating those circumstances in a model.[10]

For a model to be really useful, it must be complemented by a continuous planning cycle. Some reasonably foreseeable planning horizon is established (say, five years), and an initial forecast of objectives, workloads, resource needs, and levels of achievement over the entire period is made in the base year. In each succeeding year, the plan is updated and extended by at least a year. The result is a "moving" five-year plan, and the formulation of the operating budget for any given year takes place precisely in the context of a clearly charted, annually updated, long-term scheme. Particularly compatible with models and dynamic planning is program budgeting, a method of organizing cost data so they cut across formal organizational lines and can be used to analyze major courses of action, or programs, in terms of expected utility or benefit.

Models, plans, and budgets, however, are only as strong as the data fed into them. The management information system, then, is really at the heart of a given organization's effectiveness, or lack of it.

Data blizzard

The modern information explosion has been dramatized in various ways. The world's accumulation of knowledge purportedly has doubled in the past decade and will double again in the decade ahead. Every 40 minutes enough new information to fill a 24-volume set of the *Encyclopaedia Britannica* is added to the world's libraries.[11] According to a computer-oriented observer,

> Information is growing by the microsecond and even the nanosecond. We cannot turn off the flow.[12]

The irony of this data blizzard is that managers and administrators in business, government, education, science, engineering, and the professions still complain that they have insufficient, inappropriate, or untimely information on which to base operating decisions.

> The things we have to manage are growing geometrically, while our knowledge of how to manage seems to increase only arithmetically at best. Thus, there is more to manage, and more information to manage it with—but, by some new form of

> math, "more plus more" seems to add up to less in the way of control.[13]

Clearly the flow of information generated within a complex organization must itself be systematized and managed. What is needed is a management (or administrative) information system—a structured, interacting complex of persons, machines, and procedures designed to generate an orderly flow of pertinent information, collected from both intra-and extraorganizational sources, for use as the bases for decision making in specified responsibility areas.[14] The fundamental concept is as appropriate for a college or university as for a business firm or a government agency.

Careful construction

A closer look at the essential components of the definition may be helpful. First, a structured, interacting complex: important here is that the information system be a carefully developed master plan for information flow, with explicit objectives and a home in the formal organization. Successful systems cannot be expected to evolve spontaneously within the organization, nor will they result if their creation is left exclusively to information technicians. A characteristic shared by the companies and the few colleges or universities that so far have had success with their information systems is the support of the highest levels of administration.

A university information system requires the involvement of both line and staff personnel: deans, department chairmen, and other decision makers will have to be much more precise in specifying their information needs than in the past and new teams of information specialists will probably have to be developed to satisfy these needs.

In fact, the questions of the pertinence, periodicity, and format of the data generated by the system and the internal and external sources from which the data are to be gathered can be answered only in the framework of a careful analysis of the organization's decision structure and the specification of the information requirements for the decision process. According to many organization theorists, information processing and decision making are inseparable: a decision occurs only on

> the receipt of some kind of communication, it consists of a complicated process of combining communications from various sources and it results in the transmission of further communications.[15]

The pursuit of university information systems, then, involves much more than expanding and automating the data gathering process; it is an inextricable part of the larger pursuit of more efficient and responsive forms of organization for university administration.

In this context, an important perspective on the role of the computer arises. The computer is almost as important as it is misunderstood in information systems. Information systems and computers are not synonymous, and those who believe they are tend to have either exaggerated expectations about the computer's effectiveness in solving administrative problems or somewhat hysterical notions about machine dominance in the cybernetic world of the future.

> The study of information systems . . . is not the study of computers. It is the study of how the organization communicates and processes information to maximize the effectiveness . . . and further the objectives of management.[16]

The imposing speed, power, and cost of the computer have, however, prompted many organizations to execute the first formal analysis of their own information flow.

Concerning the dehumanizing aspects of the computer, Chris Argyris, chairman of the Department of Administrative Sciences at Yale, concludes from a long-range study of executive behavior that humans represent

> a more potent source of dehumanization, conformity, and ineffective decision-making than does computer technology.[17]

Argyris' study suggests that improving the information system in an organization tends to shift the basis of influence from coercive power to competence, and to make the organization more candid and responsive to honesty. The reasoning behind this conclusion is this:

> Once organizations are able to process information effectively and quickly, the basis of influence will shift. Power will not be able to get anything more out of an organization than will brains and human commitment (unless the organization is inflexible and unable to respond to competence). In an open, trusting organization the power for action will come from having the right knowledge at the right time, with each executive assisted by his colleagues.
>
> Once the basis of action shifts toward competence and knowledge and away from power, then many of the negative consequences of power will no longer be so imperative. For example, the computer will be effective only to the extent that truth is fed into it. Dishonesty, distortions, defensive actions cannot be programmed without the output becoming fouled up. Moreover, in a world where power is used as the major force to get compliance, it is usually accompanied by the use of guilt and exhortation. ("If you do not do what I ask you, you are bad and therefore I must punish

you.") The basis for loyalty is fear and guilt. In an organization based upon information and competence, the basis for doing the right things is that it works, it makes sense for the individual and the organization. Honesty and trust are required because such behavior is responsible, competent, and effective.[18]

In the educational institution, too, productive applications debunk the threat of dehumanization by the computer. In fact, in large universities computer-based record systems are an important device used to combat student depersonalization. As one administrator observed:

> Automation of records, far from burying the students in a file of numbers, gives them their only chance at individual attention in large institutions. With an automated system, one can be sure that every student comes up for surveillance every time a file is processed. In a manual system, he's buried in files too difficult to get at unless he's in trouble . . .[19]

Effecting 'managerialization'

The precise character of a management systems project must be tailored to two major sets of parameters. The first is the existing, unique profile of the institution: its size, traditions, strengths, weaknesses, anticipated growth, and existing organization structure. The second is the institution's goals and objectives, or its future profile.

The first two steps in the systems approach to management are formal attempts to evaluate those parameters. The process begins with the modeling of the existing condition of the organization (descriptive modeling). The next step is to develop models of some future desired state of the system (normative or deterministic modeling by program and for the institution as a whole). Finally, the process includes the identification and selection of the most cost-effective route from the current to the projected state (forecasting, planning, and budgeting by programs). The success of the entire process depends heavily on the creation of a dynamic data bank and management information system.

Perhaps the crucial turning point in "managerialization" of a given university lies between the completion of the descriptive model and the formulation of the normative model. For it is here that the aspirations, ambitions, and perceptions of the university's diverse constituencies will be expressed. Descriptive models typically are passive enough not to trigger great controversy; the storm begins when abstractions of the institution's future character are made. It will be immediately clear at this point that there are more "demands" to be met (at least in some important group's perception) than the expected stock of resources, viewed realistically, will permit. The trade-off implications of the institution's alternative growth patterns will begin to hit home (*e.g.*, a 50 percent expansion of program A will permit only a 10 percent increase in program B and will condemn C to a standstill, perhaps even a phase-out).[20]

From this point on there will be three critical aspects of the management systems project: *explication*, *objectivity*, and *leverage*.

The need for explication is clear when one contemplates the development of a master model of an organization as complex as a college or university. The literature is filled with different notions at the macrolevel of the role and scope of higher educational institutions; the internal, operational perceptions of an institution's profile and mission are probably even more diverse (*i.e.*, everyone involved has some model, at least an implicit one, of the total organization). Trite as it may sound, the greatest problem in the administration of a complex organization is to assure that all those whose decisions will materially influence the behavior or character of the organization are concerned with the same questions. Too often the attempt to choose from alternative strategies and to resolve the consequent trade-offs is made before a sufficiently common explication of the problems and choices has been achieved.

To identify, explicate, and synthesize the various implicit models of of the total university will require a high order of objectivity. Three things will be necessary to shore up this objectivity: First, the task group's "going-in" perceptions should be as neutral as possible. Second, the group must have accurate, comprehensive information as a basis for building the master model. Finally, the group must have clear support from top administration. Without these requisites, the master model almost inevitably will reflect to a disproportionate degree the biases of particularly powerful, prestigious, or vocal persons or groups.

Building a data bank and information system, formulating the master models (even the initial descriptive one), and, subsequently, implementing the planning and program budgeting system will require a large time commitment—a commitment that already burdened administrators and others may well not be able to afford. The need, then, is for a staff task group that can selectively use inputs from the university's constituent groups. Such a group, with the management systems project as its exclusive focus, can provide leverage for the time of administrators,faculty, students, and others who should have a strong impact on the project, but who have

other, more immediate concerns.

The need for explication, objectivity, and leverage strongly suggests the use of external consultants to start the managerialization project and the creation of an internal, ongoing management staff once the initial effects have "taken." Enough experience has been generated to permit the detailed visualization of a university planning and analysis center to utilize the capabilities of the university computing center and transform the existing office of institutional research or its counterpart into a comprehensive decision-information "nerve center."

The University of Houston is an example of a university in the "awful middle." It is faced with the five major pressures identified previously, plus some special conditions: it is the only multiversity in one of the nation's largest and most rapidly growing urban areas, yet it is the youngest member of the state's major university system. The effects of the first five pressures have been discussed generally; the special conditions accelerate and further proliferate regional demands on the university at a time when it has little status or political power.

Institutional response

In response to this complex of pressures, the University of Houston is undertaking a major drive toward the implementation of management systems. The Office of Institutional Studies has modeled many major sectors of the university and a master model is in progress. A five-year, continuous-planning cycle was inaugurated last year with the principal reporting unit the academic or administrative department. This resulted in over 150 separate planning documents. These would be extremely unwieldy to reconcile in their atomized form; thus, the next stage is to orient the planning/budgeting process around the university's 15 or 20 major programs.

In addition, four task forces were established to work on the major elements of a universitywide management information system: (1) Academic Information Task Force, (2) Admissions, Counseling, and Registration Task Force, (3) Financial Management Information Task Force, and (4) Physical Facilities and Space Utilization Task Force.

In a major planning document, Douglas G. MacLean, the university's vice president for staff services, observed that:

> . . . notions of "management" have encountered considerable resistance because of the fear of loss of individual freedom and of the end of independent planning by separate disciplines and activities. Implicit in this resistance is the feeling that independence can be preserved only if operations remain too complex, too obscure for organized evaluation and control. It is now apparent that spiraling costs and sheer inefficiency of operation pose a greater threat to freedom of action than do the exposure of operating details and the loss of some degree of control over resources.[21]

In its first year the Academic Information Task Force attempted a universitywide decision-information-need analysis. The study elicited a wide range of responses to the prospect of the managerialization of the university. Most reflected an awareness of the full dimensions of the management crisis facing higher education and offered encouragement and cooperation. A few represented the defensive position of status-oriented, suboptimizing administrators (an open organization of the type described by Argyris would pose a major threat to their empires).

But the middle-ground response to the information-need study was perhaps the most poignant. One department chairman observed that most information he receives seems extraneous to the significant decisions he makes; the trivial reports he receives seem helpful only in filling out the trivial reports he is required to file. "Finally," he wrote, "I had to make a decision about this questionnaire" (the task force information-need survey). "Go ahead and fill it in, like the hundreds of others that come by this desk? Or complain about it? Not that it is so tiresome in itself, but it's just another in the long string of things that seem only remotely related to what we try to do—teach school."

This wistful observation reflects the dilemma of universities caught in the awful middle. For most of America's institutions of higher learning there is no road back to the tiny, intimate community of scholars which can exist blissfully unfettered by administrative consideration (if, indeed, such communities ever existed). But neither can institutions afford to remain constellations of proliferating subempires protected by status and power affiliations and by jammed communications networks. They cannot afford to let their growth continue by fits and starts; impulsive development in the long run breeds inefficiency, alienation, and irrelevance.

Size can be managed imaginatively (*e.g.*, the cluster colleges); costs can be controlled and allocated productively to a program mix that is dynamic, but does not grow capriciously; and an organization structure based on competence and candor rather than power and status can be built. But this will require managerialization of a professional order. With it, universities have a chance not only for relevance, but also for real leadership. Without it, their destiny remains, with few exceptions, the awful middle.

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NATIONAL LABORATORY FOR HIGHER EDUCATION

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The NLHE senior college division's program, Administrative and Organizational Systems (AOS), is designed to assist colleges and universities in introducing a continuous process of constructive, rational, and orderly change. It is a program which institutionalizes change as part of an unending cycle of institutional self renewal.

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Administration and Organization

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